Imagery Option Comparisons

Aerial Services, Inc.

asi
aerial services

All flight altitudes and estimates following were derived from Leica ADS specifications

1 Meter Acquisition

- **31,647’ AGL flights**
  - Limited to turboprop or jets
  - Aircraft must be equipped with RVSM (very expensive)
- **Less line miles**

75cm Acquisition

- **25,320’ AGL flights**
  - At the upper threshold of piston aircraft
  - Only suitable for low/flat terrain if using piston or small turboprop aircraft.

65cm Acquisition

- **22,150’ AGL flights**
  - Most aerial photography aircraft can fly here
- **Altitude more suitable for piston aircraft (in most areas).**

½ Meter Acquisition

- 15,825’ AGL flights
- Most suitable for piston aircraft
- Below Class A (in most areas)
- Can fly inside a MOA since flights can be conducted VFR (in most areas).
- More aircraft available to fly at this lower altitude.
- More flight and production time = higher cost

Flight Comparisons

(State of Iowa with Leica ADS)

Flight Height (cm GSD)	Flight Height (feet AGL)	Number of Lines	Number of Line Miles	~Time to fly @ 260 kts (hours)
100	31,647	189	11,456	63
75	25,320	255	15,285	85
65	22,150	297	17,646	98
50	15,825	390	22,885	127

Time Comparisons

- **Flight**
  - 1 Meter vs. 50 cm = ~ 2 x the line miles/flight time
- **Processing**
  - 1 Meter vs. 50 cm = ~ 1-3 x the computer time
  - 1 Meter vs. 50 cm = ~ 1-2 x human interaction time
- **Data Storage**
  - 1 Meter vs. 50 cm = ~ 4 x the total file sizes

File Size Comparison

- **NAIP Iowa 2010 1 meter 4band**
  - File size = 10.3 GB
- **NAIP Iowa 2010 Hi-Res .5 meter 6band**
  - File size = 62.1 GB

File Size Comparison Continued

One DOQQ

- ½ meter
  - File size: 678 MB
- 1 meter
  - File size: 169 MB

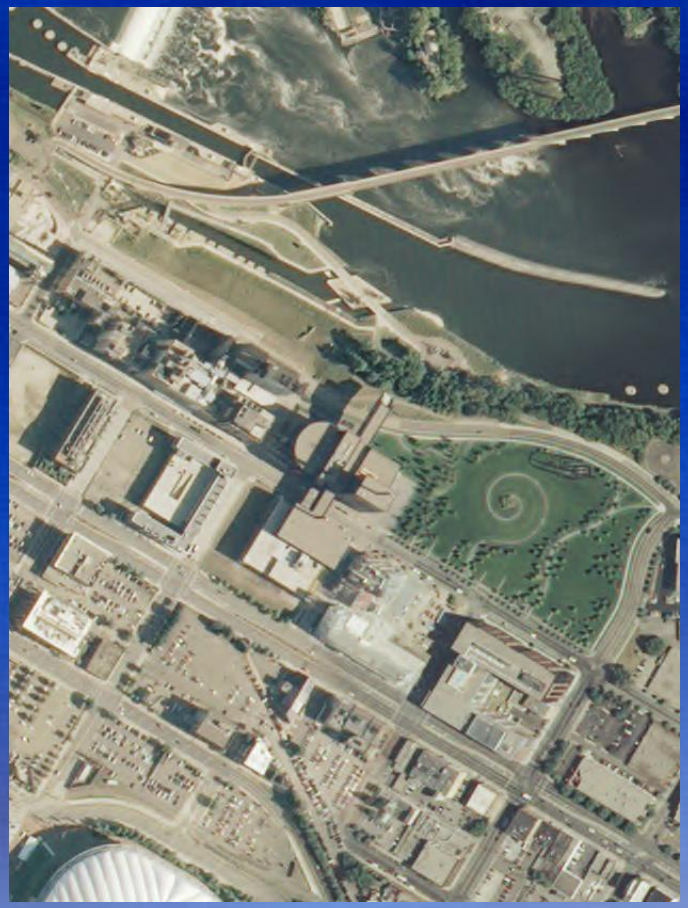
Rectified flight line

- NAIP Iowa 2010 1 meter 4band
  - File size = 10.3 GB
- NAIP Iowa 2010 Hi-Res .5 meter 6band
  - File size = 62.1 GB

Doesn’t take into account: overviews, seamlines, etc.

Samples-MN

1 meter pixel @ 1 meter



.5 meter @ 65 cm

Hi-Res output

Samples-MN

1 meter @ 1 meter

1 meter @ 65 cm

Hi-Res output

Samples-Iowa

1 meter pixel @ 65cm

.5 meter pixel @ 65cm

Hi-Res output

Advantages

- **50cm GSD collection is at 15,825’ AGL**
  - This is below the Class A airspace and also would allow flights within MOA’s.
- **Using a Leica ADS and Hi-Res mode to capture would allow a 30cm GSD product to be produced.**
- **Better product for users**
- **More enticing to potential partners for higher resolution.**

Disadvantages

- **Lower flight height = more flight line miles, which means longer acquisition.**
- **Longer processing time**
- **Data storage requirements**
  - Contractors
  - Vendor/User
- **Delivery media**
- **Existing DOQQ boundary limits if used with 50cm collection, makes for difficult production. (Smaller DOQQ boundaries would improve this?)**